Ruschi, A. 1973a. Uma nova espécie de Beija-flor do E. E. Santo. *Phaethornis nigrirostris* Ruschi. *Bol. Mus. Biol. Prof. Mello Leitão Ser. Zool.* No. 36.
Ruschi, A. 1973b. Uma nova espécie de *Threnetes* (Aves, Trochilidae). *Bol. Mus. Biol. Prof. Mello Leitão Ser. Zool.* No. 37.
Ruschi, A. 1973c. Algumas observações sobre: *Phaethornis margarettae* Ruschi, 1972. *Bol. Mus. Biol. Prof. Mello Leitão Ser. Zool.* No. 38.
Ruschi, A. 1973d. Algumas observações sobre: *Phaethornis nigrirrostris* (*sic*) Ruschi, 1973. *Bol. Mus. Biol. Prof. Mello Leitão Ser. Zool.* No. 39.
Ruschi, A. 1975. *Threnetes cristinae* n.sp. *Bol. Mus. Biol. Prof. Mello Leitão Ser. Zool.* No. 83.
Ruschi, A. 1976. Beija-flores do Amapá com a descrição de uma nova subespécie. *Threnetes niger freirei* n.subsp. *Bol. Mus. Biol. Prof. Mello Leitão Ser. Zool.* No. 84.
Ruschi, A. 1982. *Beija-flores do Estado do Espirito Santo.* São Paolo.
Ruschi, A. 1986. *Aves do Brasil.* Vol. 4. Beija-flores. Rio de Janeiro.
Scott, D. A. & Brooke, M. de L. 1985. The endangered avifauna of southeastern Brazil: a report on the BOU/WWF expeditions of 1980/81 and 1981/82. Pp. 115–139 *in* A. W. Diamond & T. E. Lovejoy (Eds). *Conservation of tropical forest birds.* ICBP Techn. Publ. No. 4.
Sick, H. 1979. Notes on some Brazilian birds. *Bull. Brit. Orn. Cl.* 99: 115–120.
Snow, D. W. & Snow, B. K. 1986. Feeding ecology of hummingbirds in the Serra do Mar, southeastern Brazil. *Hornero* 12: 286–296.
Teixeira, D. M., Nacinovic, J. B. & Pontual, F. B. 1987. Notes on some birds of north-eastern Brazil (2). *Bull. Brit. Orn. Cl.* 107: 151–157.
Vuilleumier, F. & Mayr, E. 1987. New species of birds described from 1976 to 1980. *J. Orn.* 128: 137–150.
Weske, J. S. & Terborgh, J. W. 1977. *Phaethornis koepckeae,* a new species of hummingbird from Peru. *Condor* 79: 143–147.
Wolters, H. E. 1975–1982. *Die Vogelarten der Erde.* Hamburg and Berlin.
Zimmer, J. T. 1950. Studies of Peruvian birds. No. 55. The humming-bird genera *Doryfera, Glaucis, Threnetes,* and *Phaethornis. Amer. Mus. Novit.* No. 1449.

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Relationships in the *Campethera notata, C. abingoni* and *C.(a.) mombassica* complex of the Afrotropics

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The African savanna woodland woodpeckers of the *Campethera notata* (Lichtenstein) group are widely distributed to the north, east and south of the Upper and Lower Guinea Forests, but are on the whole sparse and local in the north of their range. This is seen as due to a measure of competition with the sympatric Nubian Woodpecker *C. nubica* (Boddaert), and forms of the *C. notata* group are only numerous and widespread to the south of *C. nubica*'s range (see Snow 1978: maps 377, 378). The Knysna Woodpecker *Campethera notata* (Lichtenstein), 1823:

Galgenbosch, near Thornhill, eastern Cape, of the southern and eastern Cape, Transkei and southwestern Natal is now generally treated as a species discrete from the Golden-tailed Woodpecker *Campethera abingoni* (A. Smith), 1836: Zeerust, western Transvaal, which replaces it immediately to the northeast of its stated range. Uncertainty on this score persists in the literature (see Short & Tarboton 1978), but their true relationship is, however, briefly defined by Clancey (1986).

Specimens of *C. notata* were first taken in Natal in the valleys of the Ifafa and Illovo Rivers by the Woodward brothers last century (R. B. & J. D. S. Woodward 1899), but confirmation of their records is only of recent date with the finding of the species in the wooded valley of the Umtamvuna R. and the Oribi Gorge Nature Reserve on the southern Natal coast in the 1980s (see Clancey 1987). Its present limits in Natal are uncertain, as eradication of much of the virgin littoral flora since the turn of the century has, unfortunately, rendered the Woodwards' collecting localities no longer relevant. At their point of contact, *C. abingoni* (in the race *C. a. constricta* Clancey, 1965; Kloof, Natal) reaches the terminal point of its range and hugs the coastal strip, with *C. notata* present immediately inland of it in wooded valleys at low altitudes. The 2 species meet in a condition of closely interdigitated parapatry, but it is currently uncertain if limited hybridization takes place.

C. abingoni and *C. notata* require to be seen as comprising 2 polytypic allospecies with what appear to be differing evolutionary backgrounds, with *C. notata* the primitive member of the pair and derived from a forestal ancestor. This is indicated by likenesses in *C. notata* reminiscent of equatorial forest *Campethera* species, eg. its olive ground with reduced red tipping to the pileum in males, largely unvariegated dorsal and wing surfaces, and, in females, the virtual absence of light spotting over the forehead. Also, the tail is longer and the rectrices less rigid in *C. notata* than in *C. abingoni*. It is significant that *C. notata* is divisible into 2 races along ecological lines, with the nominate subspecies being largely dependent on stands of xerophilous and largely interior woodland, whereas the more saturated *C. n. relicta,* Clancey 1958; Embotyi, Transkei, is confined to coastal forest at Knysna and along the Transkeian coast to southwestern Natal (see Clancey 1958). Recognizing that *notata* and *abingoni* are related but not of immediate common origin, with *abingoni* wide-ranging in savanna woodland—the outcome of a not too distant south-central Afrotropical evolutionary radiation—brings one to speculate on a possible provenance of the ancestor of modern *C. notata* with its essentially terminal and relict status.

In this connection a prime consideration is that in East Africa a currently recognized race of *C. abingoni,* namely, *C. a. mombassica* (Fischer & Reichenow), 1884: Mombasa, Kenya, is not only largely coastal in distribution but also differs abruptly from the contiguous inland subspecies *C. a. suahelica* Reichenow 1902: Arusha, northern Tanzania, in sharing several of the criteria of *C. notata* subspp., thus suggesting the possibility that the origins of *notata* lie in the eastern African equatorial belt. *C. a. mombassica* exhibits characters analogous to those of *C. notata* (when laid alongside other subspecies of *C. abingoni*), in its reduced red tipping to the more olivaceous feathers of the pileum in males and the virtual loss of

light spotting to the forehead in females, plainer dorsal and wing surfaces, and a darker tail with brownish rather than bright chrome yellow rachises—characters, as already pointed out, reminiscent of equatorial forest species of *Campethera*. Ventrally, however, *mombassica* is like other *abingoni* subspp. with the breast and sides streaked with olive-brown and not spotted; but noteworthily the forethroat centre is largely plain. The 2 forms (*C. notata* and *C. a. mombassica*) thus share features indicating a like evolutionary chronology, deriving from an ancestor which arose during a major pluvial period when the Afrotropical equatorial forests and their outliers had reached a climactic stage. The question of conspecificity nevertheless does not arise, because the 2 are unquestionably separable at the species level on the basis of the characters enumerated hereunder.

Campethera abingoni mombassica compared with *C. notata relicta*

In *mombassica:* (a) Pileum much paler and more olivaceous, with even more reduced and duller terminal red to the feathers.

(b) Dorsum and wings dull citrine, less saturated greenish, but with comparable light variegation.

(c) Venter streaked (as in nominate *abingoni*) and not entirely marked with large overlapping dark olive-brown spots.

(d) Culmen from skull (mm) similar in both sexes: 23–26 (24.8). In *C. n. relicta*, male has longer bill than female: ♂♂ 26–28 (27.1), in ♀♀ 24–25.5 (24.7).

(e) Tail (mm) much shorter: 59–61 (60.2), *versus* 68.5–72 (70.25).

Campethera abingoni mombassica
compared with *C. a. suahelica* and *C. a. vibrator* Clancey 1953

In *mombassica:* (a) Pileum buffy olivaceous, not grey, and the red tipping vestigial in ♂♂. Female with forehead pale buffish, virtually unspotted, not dark grey dotted boldly with white.

(b) Dorsum and wings dull citrine with faint yellowish spotting, not bright golden olivaceous variegated with yellowish white spots and broken bars; tertials virtually unmarked.

(c) Ventral streaking browner and somewhat diffuse; forethroat virtually plain yellowish white.

(d) Bill markedly shorter. Culmen-length (mm) in *suahelica* 27.5–29 (28.4).

(e) Wing (mm) much shorter: 101.5–108 (105.0), *versus* 110–122 (115.75) in 34 ♂♀ of *C. a. vibrator*. Tail (mm) shorter: 59–61 (60.2), against 62–67 (64.0).

The limited relevant data currently available supports the view that *C. a. suahelica* and *mombassica* are almost certainly discrete species, but with hybrids having been collected at Moshi in northern Tanzania and near Dar es Salaam on the coast. This presupposes that the forms may be incompletely genetically isolated at certain points along the range interface. Interestingly, Short & Tarboton (1978) record one specimen of *mombassica* and 3 of *suahelica* as having been obtained on

Mt Kilimanjaro, all on 22 June 1967, without any hint of intergradation. However only an extended field study can adequately resolve the true status of *mombassica*.

As noted earlier, *C. a. suahelica* results from a south-central picid radiation, which in the north and northeast achieved limited expansionary success, being largely pre-empted in the exploitation of the savanna woodland niche by entrenched elements of *C. nubica*. Another cogent point is that the distributional pattern presented by the spatially remote *C. notata* subspp. and *C. (a.) mombassica* is adumbrated in some respects by a like situation among eastern subspecies of the Little Spotted Woodpecker *Campethera cailliautii* (Malherbe), 1849: Mombasa, Kenya (see discussion in Clancey 1980). The same is the case in the 3 eastern populations of the Bearded Woodpecker *Thripias namaquus* (Lichtenstein), 1793, namely *T. n. schoensis* (Rüppell), 1842: Shoa, Ethiopia, *T. n. decipiens* (Sharpe), 1884: Shimba Hills, southeastern Kenya, and *T. n. coalescens* Clancey, 1958: Kei Bridge, eastern Cape/Transkei (see Clancey 1958a), in which the Ethiopian race is shown to resemble closely that of southern Mozambique southwest to the forested coast of the Transkei.

As *C. notata* subspp. and the East African *C. (a.) mombassica* are closely allied and in an evolutionary context are more primitive than *C. abingoni* subspp., being remnants (relicts) of a distant pluvial period and forest-based radiation, it is inadvisable to treat *mombassica* as a subspecies of *abingoni*, even in the absence of conclusive proof to the contrary. While *C. a. suahelica* and *mombassica* may hybridize, their immediate ancestral origins are clearly not the same. *C. mombassica* ranges from southern Somalia to southeastern Kenya, and northeastern and eastern Tanzania, south on the littoral as far as Dar es Salaam.

In the light of these considerations, the *C. notata* group of Afrotropical woodpeckers is seen as comprising 3 allospecies: *C. notata, C. abingoni* and *C. mombassica*.

References:

Clancey, P. A. 1958. Geographical variation in the Knysna Woodpecker *Campethera notata* (Lichtenstein). *Bull. Brit. Orn. Cl.* 78 (2): 31–35.

Clancey, P. A. 1958a. The South African races of the Bearded Woodpecker *Thripias namaquus* (Lichtenstein). *Bull. Brit. Orn. Cl.* 78 (2): 35–43.

Clancey, P. A. 1980. The status of *Campethera loveridgei* Hartert, 1920, *in* 'Misc. Tax. Notes on African Birds LVIII'. *Durban Mus. Novit.* 12 (13): 156–157.

Clancey, P. A. 1986. Endemicity in the Southern African avifauna. *Durban Mus. Novit.* 13 (20): 254.

Clancey, P. A. (Ed.) 1987. *S.A.O.S. Checklist of Southern African Birds—First Updating Report,* p. 19. Southern African Ornithological Society, Johannesburg.

Short, L. L. & Tarboton, W. 1978. *in* Snow (Ed.) *An Atlas of Speciation in African Non-Passerine Birds,* map 378, p. 362. British Museum (Nat. Hist.), London.

Snow, D. W. (Ed.) 1978. *An Atlas of Speciation in African Non-Passerine Birds,* British Museum (Nat. Hist.), London.

Woodward, R. B. & Woodward, J. D. S. 1899. *Natal Birds,* p. 103. Pietermaritzburg, Natal.

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